April 29, 1952 G. V. JACKSON 2,594,651

GUIDE FOR SAWING MACHINES HAVING RECIPROCATING CARRIAGES

Filed July 11, 1949 2 SHEETS—SHEET 1

Fig. 1

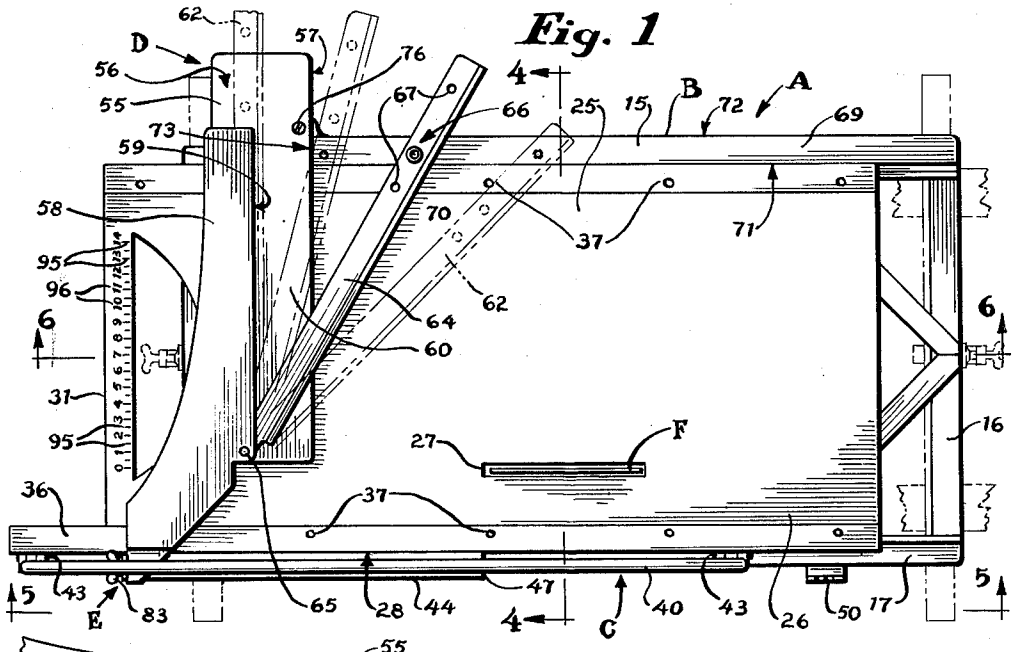


Fig. 2

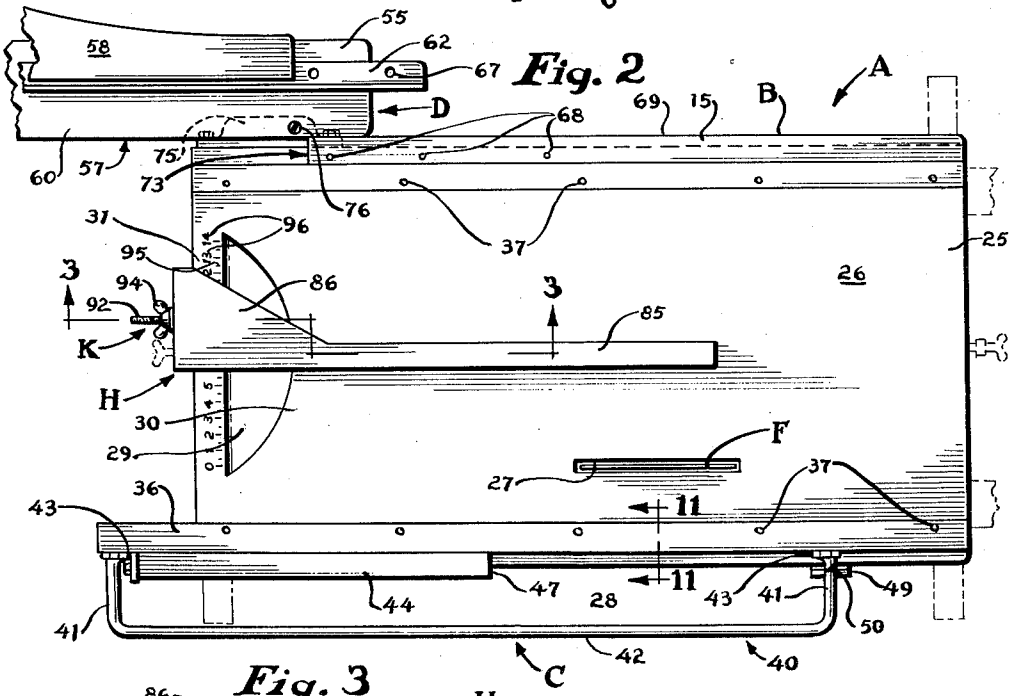
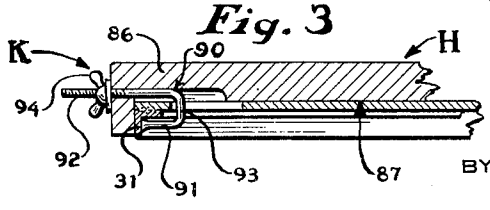


Fig. 3



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Filed July 11, 1949 2 SHEETS—SHEET 2

Fig. 11

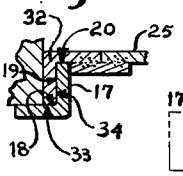


Fig. 4

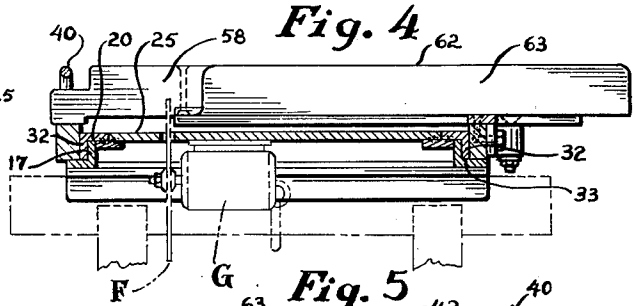


Fig. 10

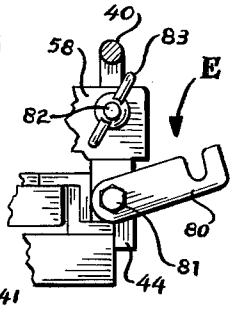


Fig. 5

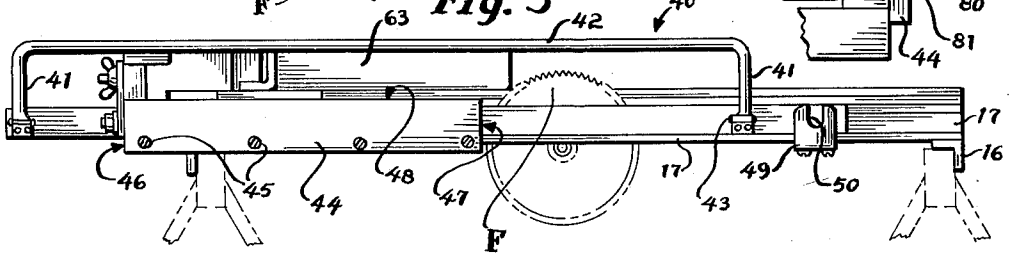


Fig. 6

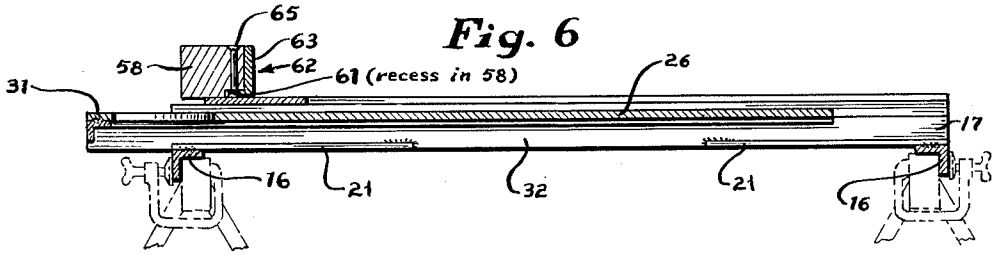


Fig. 7

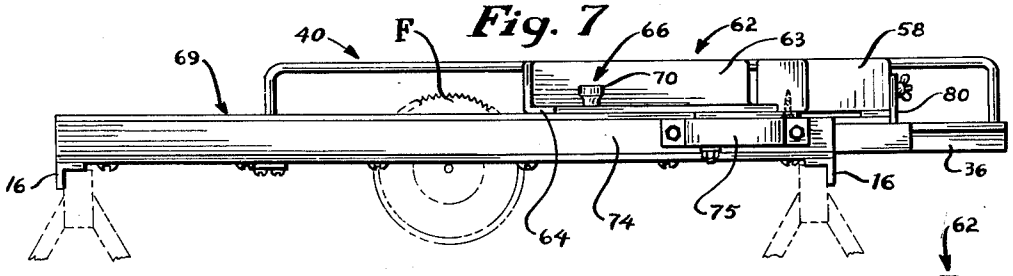


Fig. 8

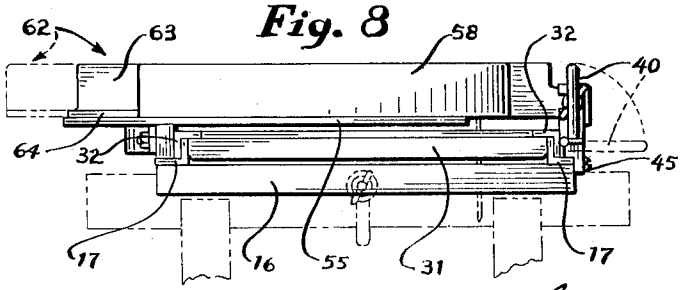
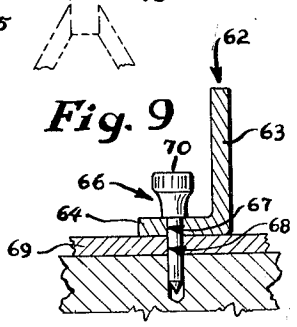


Fig. 9



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GUIDE FOR SAWING MACHINES HAVING RECIPROCATING CARRIAGES

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Application July 11, 1949, Serial No. 104,012

6 Claims. (Cl. 143—169)

1

This invention relates to machines for wood sawing and more particularly to a readily portable, adjustable-frame wood-sawing machine, adapted for a plurality of different sawing operations.

An important object of the invention is to provide a wood sawing machine having a frame so constructed that the machine is readily portable, because of its light weight and limited bulk. For example, I prefer to provide the machine as two separable portions, weighing in the neighborhood of fifty pounds each and which may be disposed for transportation within most trunk compartments of automobiles or within the body of an automobile.

Another important object is to provide an adjustable-frame wood-sawing machine, including a reciprocating carriage, mounted for efficient service without employing roller or somewhat similar bearings or moving parts apt to collect saw dust rosin and the like. The sliding contacting surfaces are self-cleaning.

Still another object is to provide a new combined mitre cut guide and lumber rest forming part of the new machine.

Another object is to provide such a combined guide and rest in conjunction with releasable securing means therefor.

A further object is to provide a novel means for releasably securing the carriage against reciprocative movement with respect to the fixed portion of the machine which means may also be employed to limit the reciprocative movement of the carriage, thus reducing the number of parts because of the dual functions of the one means.

Other objects and advantages of the invention will be apparent during the course of the following detailed description of the invention, taken in connection with the accompanying drawings, forming parts of this disclosure, and in which drawings:

Fig. 1 is a top plan of the new machine with parts disposed for mitre sawing.

Fig. 2 is a top plan, with parts disposed for ripping.

Fig. 3 is a fragmentary vertical longitudinal section, substantially on the line 3—3 of Fig. 2.

Fig. 4 is a vertical transverse section, substantially on the line 4—4 of Fig. 1.

Fig. 5 is a rear side elevation of the new machine.

Fig. 6 is a vertical longitudinal section, substantially on the line 6—6 of Fig. 1.

Fig. 7 is a front side elevation of the new machine.

2

Fig. 8 is one end elevation (the right-hand end of Fig. 7).

Fig. 9 is a fragmentary vertical section of the machine frame and a lumber guide means, with the latter adjustably retained by a retaining means (in elevation).

Fig. 10 is a fragmentary elevation of a latch means for latching a carriage forming part of the machine.

Fig. 11 is a fragmentary vertical section, substantially on the line 11—11 of Fig. 2.

In the drawings, wherein for the purpose of illustration, is shown a preferred embodiment of the invention and wherein similar reference characters designate corresponding parts throughout the several views, the letter A designates the new machine as a whole and comprising a frame B; means C for releasably securing the carriage of the frame B against reciprocative movement with respect to the fixed portion of the frame B; a combined adjustable mitre cut guide and lumber rest D; E releasable securing means for D; a saw F; means G to operate the saw F; a ripping fence H, and means K to releasably clamp the fence H to the carriage.

The frame B comprises a fixed portion 15 and a reciprocating carriage 25.

Preferably, the fixed portion 15 includes two horizontally-disposed, spaced-apart, transversely-extending end frame members 16, which may be angle irons, with one of the legs thereof extending downwardly, and two horizontally-disposed, spaced-apart, longitudinally-extending side frame members 17, which may also be angle irons with one leg of each extending outwardly and the other leg extending upwardly with these upwardly extending legs constituting flanges. The inner portions of the upper surfaces or faces 18 of the outwardly-extending legs and the outer surfaces or faces 19 and upper edges 20 of the upwardly-extending legs constitute means for slidably supporting the carriage 25 for reciprocation of the latter. The four members 16 and 17 may be rigidly joined, at their end portions in any approved way, to form a rectangular frame portion. I may brace the frame portion thus provided with cross braces 21, but not to extend over the surfaces 18.

The carriage 25 includes a horizontally-disposed, substantially flat, smooth-surfaced, elongated body, which may be a steel plate 26 having a suitable, longitudinally-extending saw-accommodating slot 27 intermediate its ends and, preferably, spaced nearest the rear side 28 of the carriage. There is also provided a suitable hand-

hold opening 29 adjacent one end 30 of the carriage, with a transversely extending hand-grip portion 31 and the carriage 25 carries means for cooperating with the means mentioned, of the fixed portion 15, for permitting reciprocation of the carriage longitudinally of the fixed portion 15. This means of the carriage may be longitudinally-extending, depending flanges 32 provided by paralleling angle irons rigidly secured to the sides of the plate 26 and with the upper faces of one leg of each angle iron in the same plane as the upper face of the plate 26. The lower edges 33 of the vertical legs of the angle irons (which legs constitute the flanges) slide over portions of the upper surfaces 18, while the inner surfaces 34 of these legs slide along the outer faces 19, and portions of the under surfaces 35 of the horizontal legs slide along the edges 20.

It should be noted that one angle iron providing the rearmost flange of the flanges 32 is longer than its fellow so that it extends outwardly of an end of the body 26, preferably to the right, forming a projection 36 for a purpose later detailed.

Suitable lubricant-receiving passageways 37 may be provided in the carriage, to receive lubricant to coat the several sliding surfaces or faces of the last-named angle irons.

Means C for releasably securing the carriage 25 against reciprocative movement with respect to the fixed portion 15 (in order to position the frame B for ripping) and, in addition, to aid in limiting reciprocative movement of the carriage 25 comprises a movable member 40. This is shown as a swinging member having a pair of parallel legs 41 and an elongated substantially straight bight portion 42 joining the legs with the free ends of the legs terminating in pivot pin-receiving eyes, axially aligned with pivot pin-receiving eyes, one of the latter being carried by preferably the free end of the longer angle iron mentioned and the other carried by the same angle iron intermediate its length with the last-named eyes extending outwardly from the upper portion of the rear flange formed by the longer angle iron. Suitable pivot pins, having heads, extend through the eyes with the innermost heads forming abutments 43 for association with a dual-function bracket or upstanding member 44 mounted, as by screws 45, upon the frame B, as upon one side frame member 17 adjacent an end thereof, to project upwardly therefrom. The bracket has opposite end faces 46 and 47, one interposed in the path of travel of one abutment 43 and the other interposed in the path of travel of the other abutment 43, and an upper face 48 above the plane of the upper face of the body 26 of the carriage 25.

Spaced, substantially as in Fig. 5, from the end face 47 is a slotted, upwardly-extending keeper 49 for the adjacent leg 41 when the latter is swung horizontally, as in Fig. 2. This keeper is, of course, carried by the fixed portion 15 as by the rear side angle iron of that portion and the slot 50 opens upwardly.

The combined adjustable mitre cut guide and lumber rest D, includes a support portion 55, which may be a flat elongated steel plate having an upper face 56 and straight longitudinal edge 57, upon which plate is fixedly mounted an arm 58, having a substantially straight edge 59, with the edges 57 and 59 in substantial parallelism and the arm 58 covering only a portion of the support portion 55 so that there is a flat, elongated and uncovered area 60 of the portion 55 between the two edges. There is provided a narrow recess 61 extending inwardly, from the lower part of the edge 59 into the arm 58 and extending to the lower face of the arm.

Pivotally carried by the arm 58 and portion 55 is a guide arm 62. This is, preferably, elongated and L-shaped in transverse section, and one portion 63 thereof is upstanding and adapted, when in one position, to extend along the straight edge 59 of the arm, while the other (horizontal) portion 64, when the guide arm is in the position mentioned, is disposed within the recess 61. The guide arm 62 is pivotally carried as by the pivot pin 65 extending vertically through the arm 58 and one end portion of the guide arm 62 and into the support portion 55, whereby it may be swung to various positions with its longitudinal axis forming various angles with the longitudinal axis of the carriage 25.

It is preferred to provide means 66 to adjustably position the guide arm 62 with respect to the longitudinal axis or path of travel of the carriage, and the means 66 may be the walls of suitably spaced apart vertically-extending openings 67 in the portion 64 of the guide arm, and the walls of spaced-apart vertical openings 68 in a suitable strip 69 extending longitudinally of the fixed portion 15, with suitable pins 70 extending through various selected openings 67 and 68.

This strip 69 has a straight inner longitudinal edge 71, a straight outer longitudinal edge 72 and a straight transverse edge 73 above the plane of the upper face of the body 26 of the carriage 25 (and in substantially the same horizontal plane as the upper face 48 of the bracket 44) and is preferably mounted upon the upper face of a vertically-extending bracket 74 which is secured to the fixed portion 15, as to the horizontal arm of the shorter longitudinally-extending frame member 17 and this bracket 74 carries an offset portion 75 extending forwardly therefrom adjacent its upper edge and near its right-hand end, so as to carry a pivot pin 76 which also extends into the support portion 55, close to the edge 57 thereof. This pin 76 is so positioned that the portion 55 (carrying the arm 58, which is rigid therewith, and the guide arm 62, which is pivoted thereto) may take the position shown in Fig. 1 or the swung-away position shown in Fig. 2, with a portion of the edge 57 disposed against the edge 72, thus the latter provides an abutment, limiting movement of the portion 55 in one direction. Conversely, the edge 73 of the strip 69 provides an abutment and limits movement of the portion 55 in the opposite direction, so that the edge 57 is normal to the path of travel (or longitudinal axis) of the carriage 25.

Releasable securing means E for the combined adjustable mitre cut guide and lumber rest D is shown in Fig. 10, and preferably comprises a pivoted and slotted latch arm 80, pivoted at its lower end portion, as by a pivot 81, to the bracket 44 at its end face adjacent the longer longitudinally-extending angle iron 17 and with its slot adapted to receive the shank of a screw threaded pin 82 (when the latch arm 80 is upright) projecting from the free end of the arm 58. The pin 82 may mount a suitable wing nut 83 to be rotated in one direction against the face of the arm 80, or released by rotation in the other direction. When the means E is in use (as in Fig. 1) the arm 58 cannot be swung to the position shown in Fig. 2 nor moved to any other position.

The saw F may be any approved one, such as

a circular saw of a width adapted to extend into and partly out of the slot 27 with clearance all around the walls of the slot and its axis of rotation normal to the longitudinal axis of the carriage, while the means G to operate the saw F may be an electric motor removably secured to the under side of the body 26, as by bolts or any other suitable means, and having a shaft operatively connected with the saw F as is well known in the art.

The ripping fence H comprises an elongated straight edge 85 having a head portion 86 at an end and provided with a face 87 adapted to abut an end face of the body 26.

Means K to releasably clamp the fence H to the carriage 25 with the straight edge 85 extending longitudinally of and upon the body 26 is shown, by way of example, in Fig. 3, and may be a U-shaped member 90 with one short leg 91 and one long leg 92 paralleling the leg 91, connected by a bight portion 93. The free end of the short leg is adapted to abut the inner face of the wall of the hand grip 31 while the leg 92 slidably extends through and out of a suitable bore in the head portion 86, is screw threaded and carries a nut, as a wing nut 94, so that the same may be adjusted on the leg 92 to clamp the means K in various positions longitudinally of the hand grip 31, one position being shown in Fig. 2.

In order that the fence H may be positioned as desired, the upper face of the hand grip may contain suitable indicia, as linear measurement graduations 95 and "inch" numerals 96. Thus, if it is desired to rip a six inch wide board, the fence H is positioned as in Fig. 2. It will be noted that an advantage of the provision of means to swing the movable parts of combined adjustable mitre cut guide and lumber rest D to the position, shown in Fig. 2, to an out-of-the-way position, is that (despite the necessity of providing a head portion 86 for the ripping fence H sufficiently large enough to accommodate the leg 92 without splitting and also furnish an abutment sufficiently large so that the straight edge 85 will not rock) by swinging the movable parts mentioned to the positions as in Fig. 2, more space is thus provided for the head portion 86 when wide boards are being ripped.

The new machine A as stated, includes the two major parts, i. e., the fixed portion 15 and carriage 25, and the latter may be lifted off the former for ease in transportation. The machine A may be supported by any approved means when in use. In Fig. 6 there is shown, in dotted lines, one conventional method. Here two two-legged supports, each support having a cross arm, support the machine while the transversely-extending angle iron frame members 16 engage the outer faces of the cross arms and conventional screw clamps are employed to fixedly secure the machine to the two-legged supports.

When suitably supported, the machine A may be adjusted for mitre sawing as shown in Figs. 1, 5, 7 and 8, with the movable member 40 of the means C upright and the releasable securing means E in operation. Proper adjustment is made by swinging the guide arm 62 to the proper angle with respect to the path of travel of the carriage. For example, in Fig. 1 the arm 62, shown in full lines, will be positioned to make a 30° cut. When properly positioned, it is held against movement by the means 66.

With the carriage 25 in the position shown in Fig. 1, the operator will cause the saw F to operate (as by starting the means G) place the plank or board in position along the guide arm and jutting beyond the same toward the side of the machine containing the member 40 and move the carriage so that the saw will move to make the cut, as is now clear. The saw cannot move so far that it will engage the arm 58, since the limit of movement of the carriage is governed by the positions of the abutments 43 engaging the end face 46 of the bracket 44, and since the pivoted end of the guide arm 62 clears the plane of the saw, there is no possibility of material being sawed, from pinching while being cut. It should be noted, also, that the carriage is below the bottom of the plank or board.

In ripping, the parts take the positions shown in Fig. 2, with one leg 41 of the member 40 within the slot 50 of the keeper 49, and the movable structure of the combined adjustable mitre cut guide and lumber rest D swung to the out-of-the-way positions as in Fig. 2, and the fence H properly positioned. There is now a clear space for longitudinal movement of the plank with respect to the machine.

Obviously, with the parts, as in Fig. 1 with the exception of the guide arm 62 moved so that its portion 64 is within the recess 61, a straight cut may be made.

Various changes may be made to the form of the invention herein shown and described without departing from the spirit of the invention or scope of the claims.

What is claimed is:

1. In a sawing machine, a frame including a fixed portion having a longitudinal side wall and a vertically-extending bracket carried by said wall, and a reciprocating, saw-carrying carriage, mounted upon said fixed portion and reciprocable in a path substantially paralleling said side wall; combined adjustable mitre cut guide and lumber rest means, including a support portion having an upper face, an elongated arm mounted upon the support portion and extending over a portion only of said upper face, and a guide arm pivotally carried by said elongated arm and movable over that portion of said face unoccupied by said elongated arm, a strip fixedly carried by said bracket and disposed to one side of said support portion and extending longitudinally of said fixed portion, means pivoting said support portion to said bracket so that said combined adjustable mitre cut guide and lumber rest may be positioned over said carriage when the former is in one position and positioned clear of the vertical plane of said carriage when in another position; and means to manually adjustably position said guide arm with respect to said strip and the path of reciprocation of said carriage.

2. In a sawing machine, a frame including a fixed portion having a longitudinal side wall and a vertically-extending bracket carried by said wall, and a reciprocating, saw-carrying carriage, mounted upon said fixed portion and reciprocable in a path substantially paralleling said side wall; combined adjustable mitre cut guide and lumber rest means, including a support portion having an upper face, an elongated arm mounted upon the support portion and extending over a portion only of said upper face, and a guide arm pivotally carried by said first-named arm and movable over that portion of said face unoccupied by said first-named arm, a strip fixedly carried by said bracket and disposed to one side of said support portion and extending longitudinally of said fixed portion, means pivoting said support portion to

said bracket so that said combined adjustable mitre cut guide and lumber rest may be positioned over said carriage when the former is in one position and positioned clear of the vertical plane of said carriage when in another position; and means to manually adjustably position said guide arm with respect to the path of reciprocation of said carriage including the walls of a plurality of spaced-apart openings in said guide arm and remote from the pivotal connection of said guide arm and elongated arm, the walls of a row of spaced-apart openings in said strip, and a pin selectively extending through any selected opening in said guide arm and any selected opening in said strip.

3. In a sawing machine, a frame including a fixed portion having a longitudinal side wall and a vertically-extending bracket carried by said wall, and a reciprocating, saw-carrying carriage, mounted upon said fixed portion and reciprocable in a path substantially paralleling said side wall; combined adjustable mitre cut guide and lumber rest means, including a support portion having an upper face, an elongated arm mounted upon the support portion and extending over a portion only of said upper face and provided with a longitudinally-extending recess paralleling said face, and a guide arm, substantially L-shaped in transverse section, pivotally carried by said elongated arm and movable over that portion of said face unoccupied by said elongated arm when in various selected positions and with a portion of the L-shaped guide arm in said recess when in another position with its longitudinal axis normal to the path of travel of said carriage, a strip fixedly carried by said bracket and disposed to one side of said support portion and extending longitudinally of said fixed portion, means pivoting said support portion to said bracket so that said combined adjustable mitre cut guide and lumber rest may be positioned over said carriage when the former is in one position and positioned clear of the vertical plane of said carriage when in another position; and means carried by said strip to manually adjustably position said guide arm with respect to the path of reciprocation of said carriage.

4. In a sawing machine, a frame including a fixed portion having longitudinal side wall and a vertically-extending bracket carried by said wall, and a reciprocating, saw-carrying carriage, mounted upon said fixed portion and reciprocable in a path substantially paralleling said side wall; combined adjustable mitre cut guide and lumber rest means, including a support portion having an upper face, an elongated arm mounted upon the support portion and extending over a portion only of said upper face, and a guide elongated arm pivotally carried by said arm and movable over that portion of said face unoccupied by said arm, a strip fixedly carried by said bracket and disposed to one side of said support portion and extending longitudinally of said fixed portion and having an end edge and an outer longitudinal side edge, means pivoting said support portion to said bracket so that said combined adjustable mitre cut guide and lumber rest may be positioned over said carriage when the former is in one position and positioned clear of the vertical plane of said carriage when in another position with a portion of said support portion abutting a portion of said outer longitudinal side edge; and means carried by said strip to manually adjustably position said guide arm with respect to the path of reciprocation of said carriage.

5. In a sawing machine, a frame including a fixed portion having a longitudinal side wall and a vertically-extending bracket carried by said wall, and a reciprocating, saw-carrying carriage, mounted upon said fixed portion and reciprocable in a path substantially paralleling said side wall; combined adjustable mitre cut guide and lumber rest means, including a support portion having an upper face, an elongated arm mounted upon the support portion and extending over a portion only of said upper face and provided with a longitudinally-extending recess paralleling said face, and a guide arm, substantially L-shaped in transverse section, pivotally carried by said elongated arm at an end of said recess and movable over that portion of said face unoccupied by said elongated arm when in various selected positions and with a portion of the L-shaped guide arm in said recess when in another position with its longitudinal axis normal to the path of travel of said carriage, a strip fixedly carried by said bracket and disposed to one side of said support portion and extending longitudinally of said fixed portion, means pivoting said support portion to said bracket so that said combined adjustable mitre cut guide and lumber rest may be positioned over said carriage when the former is in one position and positioned clear of the vertical plane of said carriage when in another position; and means carried by said strip to manually adjustably position said guide arm with respect to the path of reciprocation of said carriage, said last-named means being remote from said pivotal connection of the elongated arm and guide arm.

6. In a sawing machine, a frame including a fixed portion having a longitudinal side wall and a vertically-extending bracket carried by said wall, and a reciprocating, saw-carrying carriage, mounted upon said fixed portion and reciprocable in a path substantially paralleling said side wall; combined adjustable mitre cut guide and lumber rest means, including a support portion having an upper face, an elongated arm mounted upon the support portion and extending over a portion only of said upper face and provided with a longitudinally-extending recess paralleling said face, and a guide arm, substantially L-shaped in transverse section, pivotally carried by said elongated arm at an end of said recess and movable over that portion of said face unoccupied by said elongated arm when in various selected positions and with a portion of the L-shaped guide arm in said recess when in another position with its longitudinal axis normal to the path of travel of said carriage, a strip fixedly carried by said bracket and disposed to one side of said support portion and extending longitudinally of said fixed portion, means pivoting said support portion to said bracket so that said combined adjustable mitre cut guide and lumber rest may be positioned over said carriage when the former is in one position and positioned clear of the vertical plane of said carriage when in another position; and means carried by said strip to manually adjustably position said guide arm with respect to the path of reciprocation of said carriage, said last-named means being remote from said pivotal connection of the elongated arm and guide arm and being disposed at that side wall of said frame carrying said bracket.

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(References on following page)

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
128,472	Doane	July 2, 1872
812,574	Linton	Feb. 13, 1906
1,028,529	Bemis	June 4, 1912
1,168,853	Chabre	Jan. 18, 1916
1,789,125	Wilderson	Jan. 13, 1931
2,010,882	Ocenasek	Aug. 13, 1935
2,032,976	Carter	Mar. 3, 1936
2,101,709	Hedgpeth	Dec. 7, 1937
2,230,929	Bray	Feb. 4, 1941
2,260,421	Tracy	Oct. 28, 1941
2,310,813	Sellmeyer	Feb. 9, 1943
2,488,077	Buday	Nov. 15, 1949

FOREIGN PATENTS

Number	Country	Date
366,034	Germany	of 1922
609,197	France	of 1926